

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2014/2015**

**YEAR 2 SEMESTER II EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**ICS 2104: OBJECT ORIENTED PROGRAMMING I (JAVA)**

**DATE: APRIL 2015 TIME: 2 HOURS**

**INSTRUCTIONS: Answer Question One and Any Other Two Questions**

**QUESTION ONE (30 MARKS)**

1. State the main different between the following terms used in Object Oriented Programming (4marks)
2. Object and classes
3. Encapsulation and data abstraction
4. List and explain the main Access Control Modifiers in class declaration that are used in Java programming (6marks)
5. Explain three reasons as to why Object oriented programming is gaining more popularity as compared to procedural programing (3marks)
6. The value of a variable y depends on the value of variable x as shown below (3marks)

X Y

1 0.1

2 0.2

Other value 0

Write down a Java switch structure for the probe

1. Design and write a Java program which accepts an amount of money entered in Kshs. If the amount is greater or equal to 1000sh, a 5% discount is given to the customer. It should also display the amount the customer has to pay (4marks)
2. Describe a constructor and explain any three rules for a valid construction in Java programing (3marks)
3. Explain the part of the main method “public static void main (string []args)” (4marks)
4. Given write a program that allow user to enter the value of x and y and give output of a (4marks)

**QUESTION TWO (15 MARKS)**

1. Explain the difference between method overriding and method overloading (4marks)
2. State and explain four characteristics of Java programming which give advantage over other high level programming languages (4marks)
3. Assume that every employee gets 20% house allowance. Assume also that those earning at least 10,000 pay some tax at the rate of 10%. Design and write a Java code to input the net salary. NB; Net salary=Basic salary +House allowance –tax (2marks)
4. Explain the term Java development tool kit (JDK) and its main role in compiling (2marks)
5. Explain the characteristics of objects in Java programming (3marks)

**QUESTION THREE (15 MARKS)**

1. With examples state the major differences between Java-stand-alone application and Java applets (4marks)
2. Define the term array and write object oriented program that uses an array to store four names and displays the names. (4marks)
3. Using switch statement write a Java program to display the day depending on the choice entered by the user from the keyboard i.e 1 is Monday, 2 is Tuesday 3 is Thursday………..7 is Sunday (6marks)
4. Given that a=20, b=5, c=9, what is the value of the following expressions
5. A>b and b>c
6. A==b||a>=c
7. With example of Java program explain the difference between static and instance variables (4marks)

**QUESTION FOUR (15 MARKS)**

1. Give two differences between while….and do…..while loops (2marks)
2. Using a while loop, write a program to output all numbers divisiable by 2 in descending order from 150 to 50 (4marks)
3. Re-write the above program using do while loop. (3marks)
4. Write a Java program which allow the user to input four integers it then output the maximum of the four integers (5marks)
5. Discuss the following object oriented concept use a simple example in each case (6marks)
6. Encapsulation
7. Polymorphism
8. Inheritance

**QUESTION FIVE (20 MARKS)**

1. Explain the difference steps used in developing a Java application (6marks)
2. Java library classes are organized into packages. Explain the use of the following classes. (3marks)
3. Java.util
4. Java.awt
5. Java.swing
6. Write a Java program to input the price and quantity purchased of an item. The program them computes the discount and the total amount to be paid. Assume a discount of 6% (5marks)